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The amended Claim 1 in the present invention has discloses a rotor structure of a stepping motor, which includes a magnet having a first annular wall; a magnet holder having a base and a second annular wall connected with said first annular wall of said magnet for fixing said magnet; a shaft having one end mounted through said base of said magnet holder; and a stopper for supporting and fixing the other end of said shaft; wherein said stopper is fixedly positioned along said shaft in one location within a range of possible locations to maintain a relatively low rotational inertia, said one location being corresponded to the length of said magnet.

Applicant could find no teaching or suggestion in the cited references which discloses "a stopper for supporting and fixing the other end of said shaft, wherein said stopper is fixedly positioned along said shaft in one location within a range of possible locations to maintain a relatively low rotational inertia, said one location being corresponded to the length of said magnet." MIC

In contrast, Applicant submits that the "stopper 65" allegedly indicated in Agematsu et al. is, in fact, a disc spring (Agematsu, column 11, lines 54-56). As shown in FIG. 6 in Agematsu et al., the disc spring 65 is sandwiched between the bearing 64a and a rotational-shaft support portion 53a. Precisely speaking, the disc spring 65 is a completely different structure from the stopper of the present invention and is not able to achieve the same function. Further, magnet holder 103 allegedly indicated in Agematsu et al. is, in fact, a stator cap 103 (Agematsu, column 13, lines 55-62). Accordingly, the rotor structure disclosed in Agematsu et al. patent is a different structure from the present invention.

Matsuhima fails to cure the deficiencies of Agematsu. Applicant submits that the stopper 12 allegedly indicated in Matsuhima is, in fact, an eccentric member (Matsuhima, column 3, lines 57-63). Referring to Figs.1-2 in Matsuhima, the eccentric member 12 is like a disk and has a relatively large hole 12a so that the eccentric member 12 is able to be loosely mounted on the shaft. Apparently, the eccentric member 12 is a completely different structure compared to the stopper of the present invention, especially since the stopper is able to support and fix one end of the shaft. Therefore, since the eccentric member 12 does not perform the same function as the stopper of the present invention, Matsuhima when combined with Agematsu et al., does not arrive at Applicant's invention.

In addition, the cited references do not teach in any way to solve the problem that the present invention tries to overcome. The problem is, providing a rotor structure to decrease

the rotational inertial, which is able to be used in different type motors by adjusting the position of the stopper. However, none of the cited references separately or jointly teaches nor suggests the stopper structure as the present invention. As set forth in the claims and as described in the Specification (Page 5, lines 9-18), the stopper is able to be moved to a proper position along the shaft without increasing the rotational inertial of the rotor. Since the stopper can be positioned corresponding to the length of the magnet, it can be repeatedly utilized without changing the size thereof. The rotor structure of a stepping motor as set forth in the amended Claim 1 is provided to achieve the purpose of having a smaller rotational inertial for a better acceleration capacity and a cheaper manufacturing cost at the same time, which are not able to be accomplished by either Agematsu et al. or Matsuhima alone or in combination. Therefore, Applicant respectfully submits that Claim 1 is allowable over Agematsu et al. in view of Matsuhima.

Claims 10 and 11 which disclose features similar to Claim 1 are therefore allowable over Agematsu et al. in view of Matsuhima for at least the same reasons as Claim 1.

Claims 2-4, 6-9 and 12 depend from Claim 1 and are therefore allowable for at least the same reason as Claim 1. Claim 13 depends from Claim 10 and is therefore allowable for at least the same reasons as Claim 10. Claim 14 depends from Claim 11 and is therefore allowable for at least the same reasons as Claim 11.

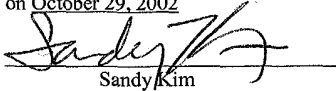
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CONCLUSION

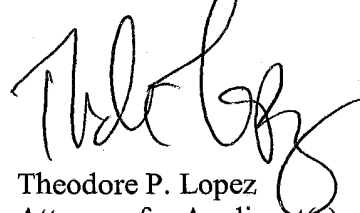
For the above reasons, pending Claims 1-4 and 6-14 are now in condition for allowance and allowance of the application is hereby solicited. If the Examiner has any questions or concerns, the Examiner is hereby requested to telephone Applicant's Attorney at (949) 752-7040. 24

I hereby certify that this correspondence is being deposited with the United States Postal Service as First Class Mail in an envelope addressed to: Commissioner for Patents, Washington, D.C. 20231, on October 29, 2002

  
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October 29, 2002  
Date of Signature

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ATTACHMENT A - VERSION WITH MARKINGS TO SHOW CHANGES MADE

1. (Amended) A rotor structure of a stepping motor, comprising:
  - a magnet having a first annular wall;
  - a magnet holder having a base and a second annular wall connected with said first annular wall of said magnet for fixing said magnet;
  - a shaft having one end mounted through said base of said magnet holder; and
  - a stopper for supporting and fixing the other end of said shaft;

wherein said stopper is fixedly positioned along said shaft in one location within a range of possible locations [**on said shaft**] to maintain a relatively low rotational inertia, said one location [**being a function of the height**] corresponded to the length of said magnet.

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